SWIM-SUIT :
SWIM Supported by Innovative Technologies

SELEX
Sistemi Integrati

Massimiliano De Angelis – SELEX-SI
1st May 2006 – NASA iCNS Conference

Higher Thinking.
FINMECCANICA

Consortium Composition - 1/2

INDUSTRIES

1. **SELEX SI (IT) (Coordinator)**
2. **SELEX COM (IT)**
3. **FREQUENTIS (AT)**
4. **BOEING RTE (ES)**
5. **ALCATEL ALENIA SPACE (FR)**
6. **QINETIQ (UK)**

ANSPs

1. **NAV (PT)**
2. **DSNA (FR)**
3. **ATMB (CHINA)**

AIRLINES

1. **ALITALIA (IT)**
2. **AIR FRANCE CONSULTING (FR)**

SELEX Sistemi Integrati

Higher Thinking. FINMECCANICA

Consortium Composition - 2/2

AIRPORT OPERATORS

1. SEA (Milan Malpensa Airport) (IT)

RESEARCH CENTRES

1. SICTA (IT)
2. EUROCONTROL Experimental Centre (FR) (?)

UNIVERSITY

1. UNIVERSITY OF ZILINA (SLOVAK REPUBLIC)

SMEs

1. NeoMetsys (FR)
2. Advanced Resources (PT)
3. Sector (GR)

SELEX Sistemi Integrati

Higher Thinking. FINMECCANICA

Summary of the Project Objectives - 1/2

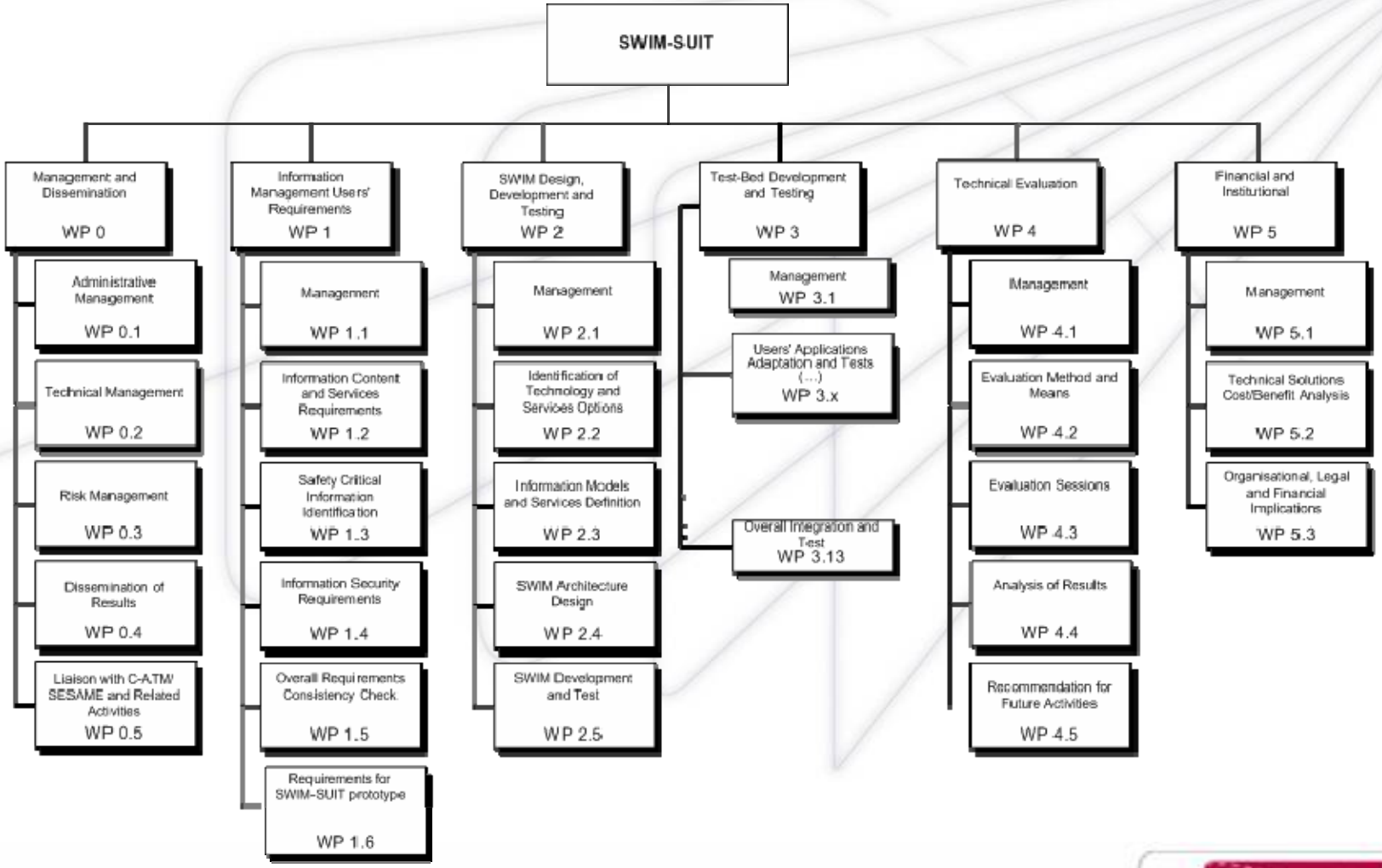
- **The early introduction of System-Wide Information Management (SWIM) capability is necessary to the ATM community to make their systems move from an essential distributed network of independent units to an efficient network of integrated co-operators**

- **The feasibility to develop SWIM in all its aspects shall be performed through:**
  - **information models**
  - **information management processes**
  - **system architectures**
  - **technologies enabling its successful implementation**
  - **information access and security mechanisms**
  - **organisational, legal and financial implications**

Summary of the Project Objectives - 2/2

- **At the completion of the SWIM SUIT Project, the following objectives shall be met:**
  - **For the implementation of the technologies supporting the SWIM concept:**
    - ***Information content and service requirements***
    - ***Functional Hazard Assessment (FHA)***
  - **For the development of a SWIM prototype:**
    - ***SWIM Prototype requirements***
    - ***SWIM Prototype architecture design***
    - ***Preliminary System Safety Assessment (PSSA)***
  - **SWIM Prototype**
  - **At the end of the evaluation session:**
    - ***Experimental results***
    - ***System Safety Assessment (limited to the context of the project)***
  - **Legal and financial implications reports**

Work Breakdown Structure



SELEX Sistemi Integrati

Higher Thinking.
FINMECCANICA

WP0: Management & Dissemination - Tasks

- The objective of WP0 is the management and co-ordination of all the project activities in order to ensure their completion on schedule and with the requested quality and the dissemination of Project results
- The WP0 is structured as follows:
  - WP 0.1: Administrative Management
  - WP 0.2: Technical Management
  - WP 0.3: Risk Management
  - WP 0.4: Dissemination of Results
  - WP 0.5: Liaison with C-ATM/SESAR/Other and Related Activities

WP1: Information Management Users' Requirements - Tasks

- **WP1 shall identify the set of user requirements for both the SWIM and its prototype, mainly related to the system information management**

- **The process will be performed through:**
  - the identification of Information Content and Services Requirements from the C-ATM and OATA, projects and users' expectations (WP1.2).
  - a safety (WP1.3) and security (WP1.4) analysis to have a first evaluation of SWIM information content and services
  - Overall requirements consistency check (WP1.5)
  - The definition of the core requirements of SWIM Prototype (WP1.6)

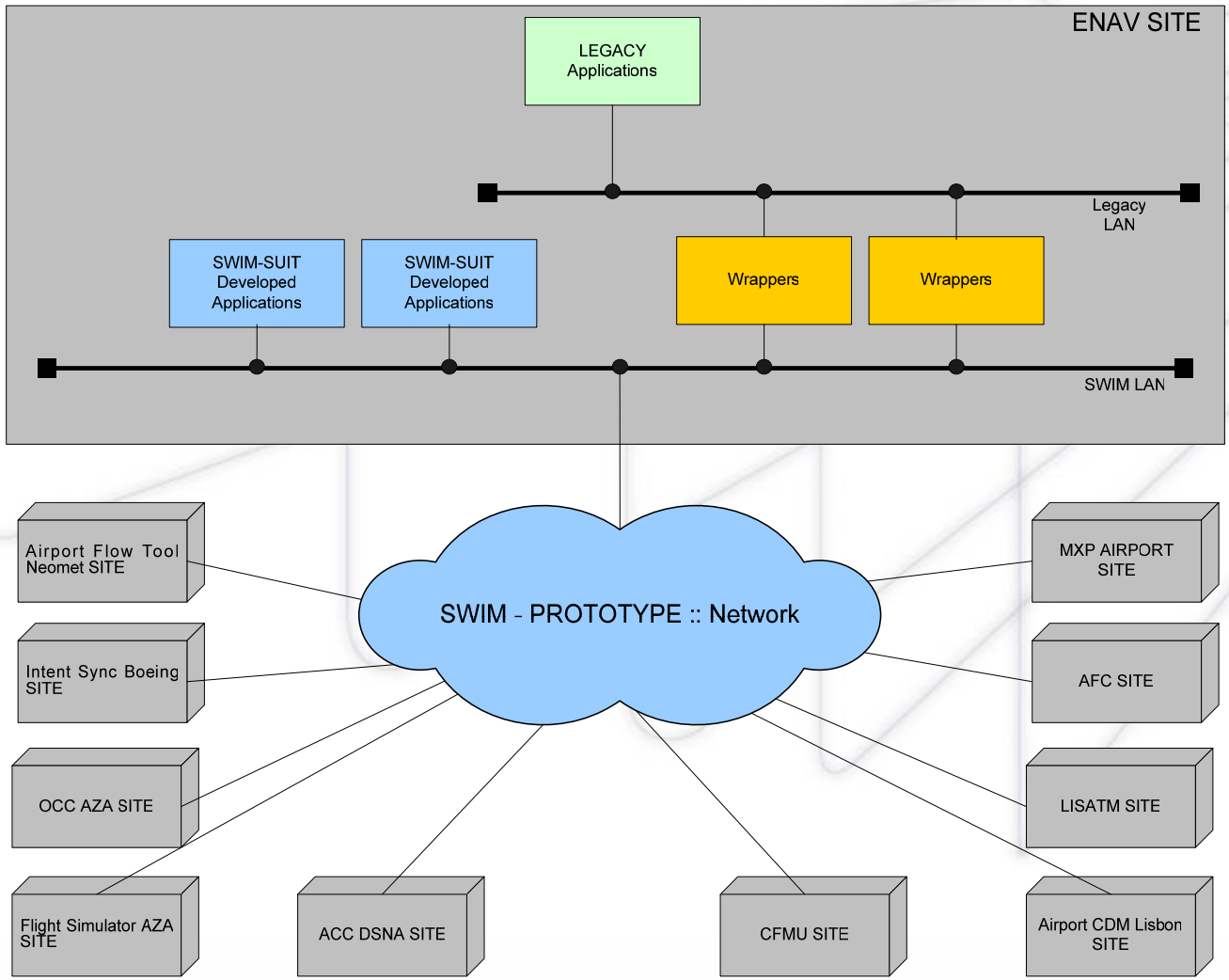
WP2: SWIM Design, Development and Testing - Tasks

- **WP2 will output a SWIM Prototype and represents the core design and implementation activity. The objective of this WP is to identify:**
  - Supporting technologies and
  - Information representation models
  - Prototype architectural design

  Based on this design a prototype will be implemented.

- **WP2 is structured in:**
  - WP 2.1 traces the management activities the progresses
  - WP2.2 and WP 2.3 elaborate the basis for the architectural design.
  - WP 2.4 defines the SWIM prototype architecture design.
  - WP 2.5 implements the SWIM prototype.

SWIM Prototype Physical Layout



- **The SWIM LAN is connected to the SWIM Prototype Network which is substantially a WAN that connects all the sites**
- **One or more technologies (e.g. CORBA, WEB Services) will be identified and used to support the building of the SWIM Prototype.**

SELEX Sistemi Integrati

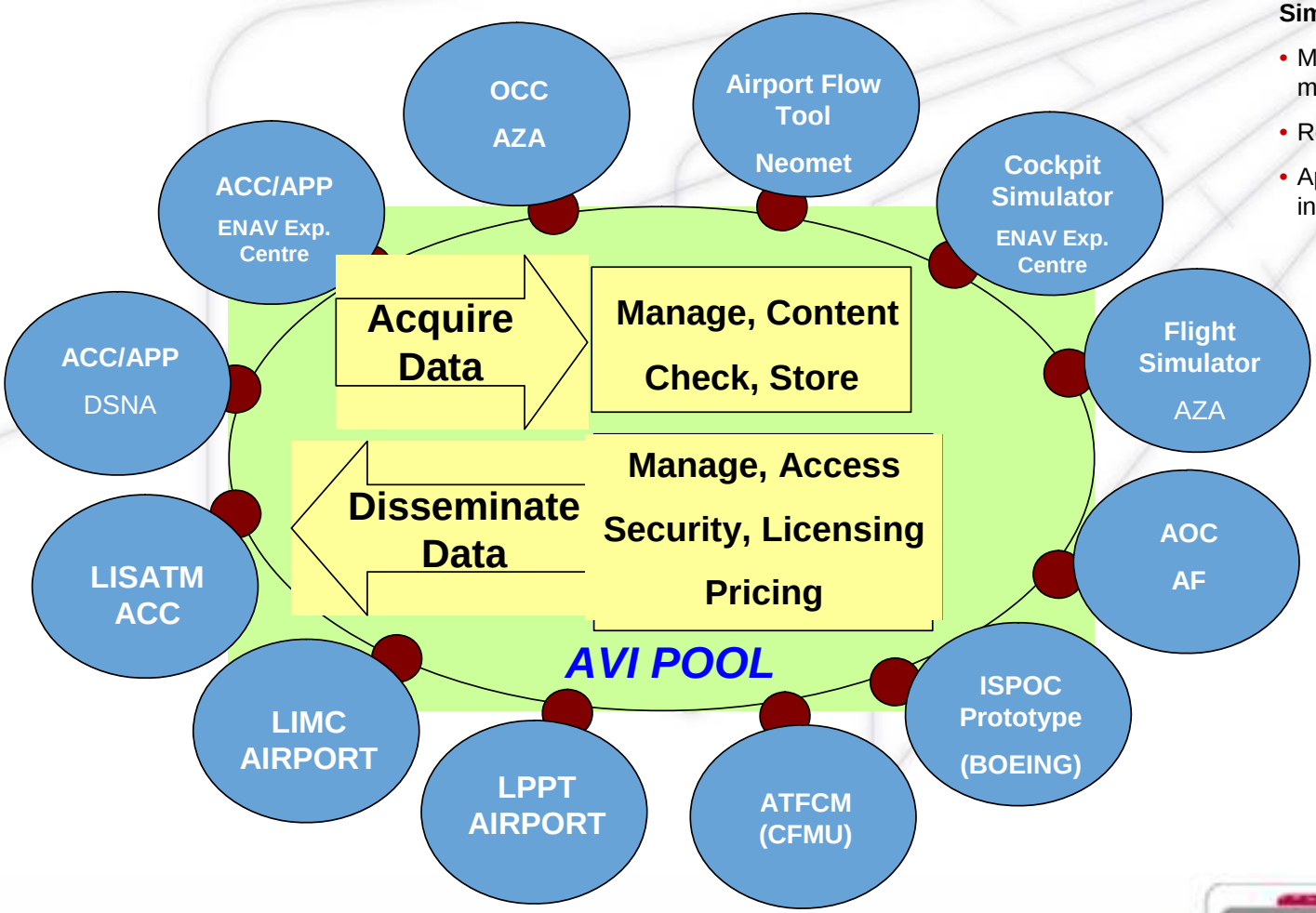
Higher Thinking. FINMECCANICA

WP3: Test-Bed Integration and Testing - Tasks

- **In the WP3 the adaptation of the existing legacy applications to be used in the Test-Bed for the evaluation will be carried out.**

- **WP3 will contain a set of sub-Work Packages (from WP 3.2 up to WP 3.12), each one related to the development of the adaptation of the applications available in each site to be used for the test-bed.**

SWIM-SUIT – The Test-Bed Architecture



Simulated aircraft:

- More flexible to manage
- Reduced costs
- Applications independent from d-l

SELEX
Sistemi Integrati

Higher Thinking.
FINMECCANICA

WP4: Technical Evaluation - Tasks

- **WP4 includes all activities required for the technical evaluation of the selected solutions from WP2, using the test-bed developed in WP2 and integrated with the Legacy Applications (WP3).**

- **The top-level objectives of WP4 are to provide:**
  - Technical evaluation of the SWIM prototype as exercised in the project test-bed;
  - Recommendations for key aspects of future development based on this technical evaluation.

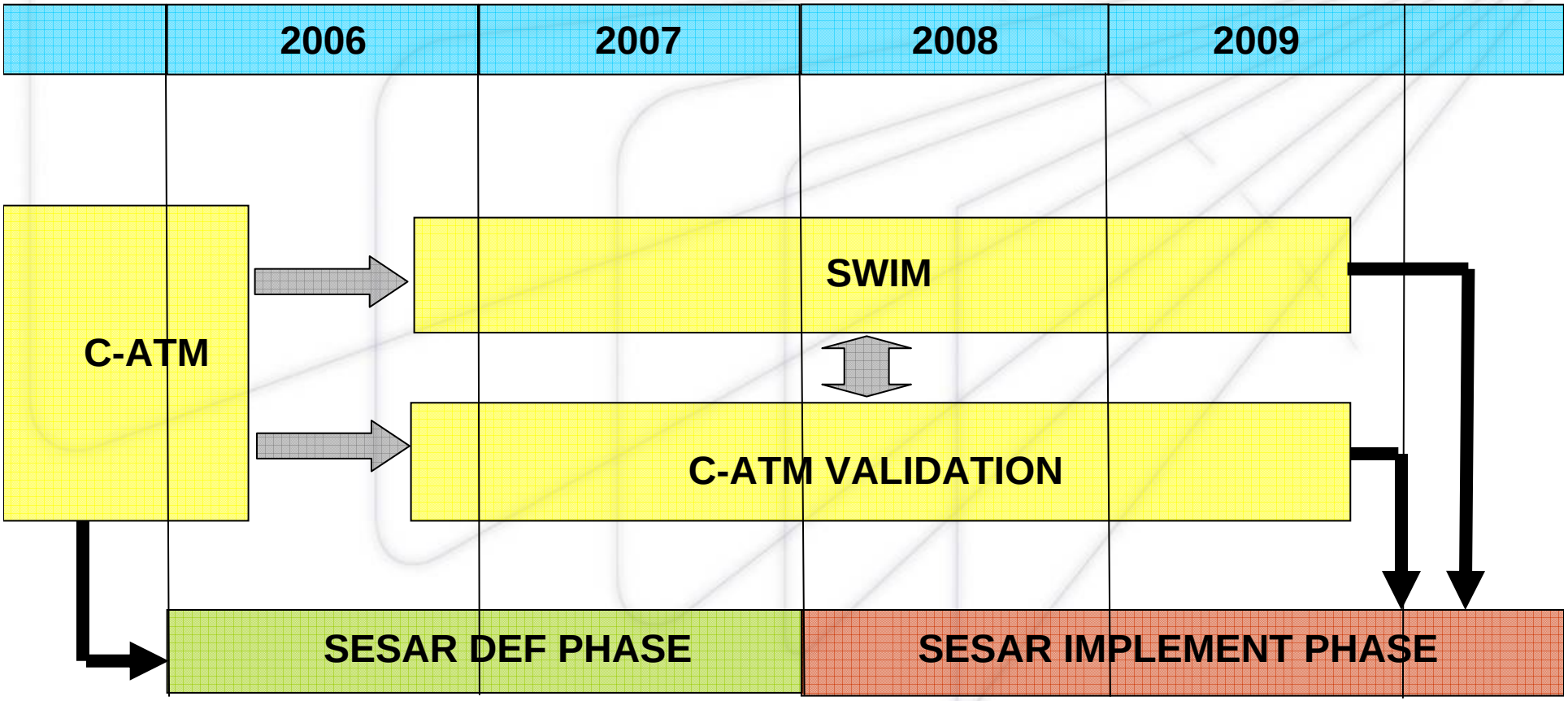
- **Technical Evaluation Approach envisions that two testing sessions are performed:**
  - The first will collect an initial significant set of result giving also feedbacks to the WP1, WP2 and WP3 teams.
  - The second will run a series of dimensioning test cases in order to refine the session results and will form the final basis for the Evaluation Report provision and the Recommendations.

WP5: Financial and Istitutional - Tasks

- **The purpose of this WP is to perform the Cost Benefit Analysis of the selected technical solutions based on System Wide Information Management (SWIM) concept.**

- **A generic Cost Benefit Analysis methodology will be used and tailored for SWIM.**

SESAR & FP6 : RELATIONSHIPS



SELEX Sistemi Integrati

Higher Thinking. FINMECCANICA

SELEX
Sistemi Integrati

Grazie !

SELEX Sistemi Integrati S.p.A.
Via Tiburtina, Km 12.400
00131, Roma
Italia
T: +39 06 415041

Higher Thinking.
FINMECCANICA